



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Frank O'Bannon
Governor

Lori F. Kaplan
Commissioner

March 23, 2004

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

TO: Interested Parties / Applicant

RE: Foamex, L.P. / SPM 033-15909-00047

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval – Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-17-3-4 and 326 IAC 2, this permit modification is effective immediately, unless a petition for stay of effectiveness is filed and granted, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3-7 and IC 13-15-7-3 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, IN 46204, **within eighteen (18) days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

Pursuant to 326 IAC 2-7-18(d), any person may petition the U.S. EPA to object to the issuance of a Title V operating permit or modification within sixty (60) days of the end of the forty-five (45) day EPA review period. Such an objection must be based only on issues that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impracticable to raise such issues, or if the grounds for such objection arose after the comment period.

To petition the U.S. EPA to object to the issuance of a Title V operating permit, contact:

U.S. Environmental Protection Agency
401 M Street
Washington, D.C. 20406

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.



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March 23, 2004

Mr. Gary Reynolds
Foamex, L.P.
2211 South Wayne Street
Auburn, Indiana 46706

Re: 033-15909
Second Significant Permit Modification to
Part 70 No.: T 033-7625-00047

Dear Mr. Reynolds:

Foamex, L.P. was issued a permit on November 11, 1998 for a flexible polyurethane foam production plant. A letter requesting changes to this permit was received on March 19, 2002. Pursuant to the provisions of 326 IAC 2-7-12 a significant permit modification to this permit is hereby approved as described in the attached Technical Support Document.

The modification consists of increasing the methylene chloride blowing agent usage in the existing Variable Pressure Foaming (VPF) line and changing the minimum required control efficiency for the carbon adsorber controlling TDI, MDI, and tertiary amine VOC emissions from the VPF line from 95% for TDI and MDI emissions and 50% for tertiary amine VOC emissions to a total VOC overall control efficiency of 51%.

All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Trish Earls, c/o OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call at (973) 575-2555, ext. 3219 or dial (800) 451-6027, press 0 and ask for extension 3-6878.

Sincerely,

Original signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
TE/EVP

cc: File - DeKalb County
U.S. EPA, Region V
DeKalb County Health Department
IDEM Northern Regional Office
Air Compliance Section Inspector - Doyle Houser
Compliance Data Section - Karen Ambil
Administrative and Development
Technical Support and Modeling - Michelle Boner



Joseph E. Kernan
Governor

Lori F. Kaplan
Commissioner

100 North Senate Avenue
P. O. Box 6015

Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

PART 70 OPERATING PERMIT OFFICE OF AIR QUALITY

**Foamex, L.P.
2211 South Wayne St.
Auburn, Indiana 46706**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T033-7625-00047	
Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Quality	Issuance Date: November 11, 1998

First Significant Source Modification No. 033-13706-00047, issued on June 25, 2001;

First Significant Permit Modification No. 033-14184-00047, issued on July 17, 2001;

Second Significant Permit Modification No. 033-15909-00047	Pages Amended: 5, 29, 32a - 32c, 32g, 39, 40a
Issued by: Original signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: March 23, 2004

SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary flexible polyurethane foam production plant.

Responsible Official:	Plant Manager
Source Address:	2211 South Wayne St., Auburn, Indiana 46706
Mailing Address:	same as above
General Source Phone Number:	219-925-1073
SIC Code:	3086
County Location:	Dekalb
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Minor Source, under PSD Rules; Major Source, Section 112 of the Clean Air Act

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

- (1) One (1) flat block pour line, identified as EU-PL, with a maximum capacity of producing 4.8×10^8 board feet of foam per year, and exhausted through seven (7) stacks (S/V ID 1,2,3,4,5,6,7). This facility was installed in November of 1977;
- (2) two (2) Flame Laminators, identified as Flame Laminator #1 (EU-F1) and Flame Laminator #2 (EU-F2), each with a maximum capacity to finish 3.504×10^8 square feet per year of polyurethane foam. Flame Laminator #1, installed in 1978, is exhausted through two (2) stacks (S/V ID 15,16), and Flame Laminator #2, installed in 1993, is exhausted through one (1) stack (S/V ID 34);
- (3) four (4) Rebond mold units, identified as EU-R1, EU-R2, EU-R3, and EU-R4, with a total maximum capacity of bonding 9.6 tons per hour of scrap foam, exhausted through four (4) stacks (S/V ID 28, 29, 35, 36), respectively;
- (4) one (1) source-wide adhesive application operation, with emissions venting inside the plant;
- (5) one (1) source-wide chemical solvent usage operation, with emissions venting inside the plant;
- (6) three (3) natural gas-fired industrial boilers identified as Boilers #1, #2 and #3 (EU-B1, EU-B2, EU-B3), each rated at 10.5 million (MM) British thermal units (Btu) per hour and exhausted through three (3) stacks (S/V ID 31,32,33), respectively. Boilers #1 and #2 were installed in 1978 and Boiler #3 was installed in 1986; and

- (7) one (1) Variable Pressure Foaming (VPF) line, constructed in 2001, with a maximum capacity of producing 800,000,000 board feet of foam per year, with a carbon adsorber to control VOC emissions, exhausted through two (2) stacks (ID Nos. 39 and 40). Alternately, this line also has the capacity to produce a small amount of foam by pouring using a maximum of 4,000,000 pounds per year of MDI and 447,329 pounds per year of methylene chloride.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(15)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (1) The following units emitting greater than 1 pound per day but less than 5 pounds per day or 1 ton per year of a single HAP:
- (a) TDI/MDI Storage Tanks [326 IAC 14, 40 CFR Part 63.1290 through 63.1309, Subpart III].

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION D.1

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

- (a) One (1) flat block pour line, identified as EU-PL, with a maximum capacity of producing 4.8×10^8 board feet of foam per year, and exhausted through seven (7) stacks (S/V ID 1,2,3,4,5,6,7). This facility was installed in November of 1977;
- (b) two (2) Flame Laminators, identified as Flame Laminator #1 (EU-F1) and Flame Laminator #2 (EU-F2), each with a capacity to finish 3.504×10^8 ft² per year of polyurethane foam. Flame Laminator #1, installed in 1978, is exhausted through two (2) stacks (S/V ID 15,16), and Flame Laminator #2, installed in 1993, is exhausted through one (1) stack (S/V ID 34);
- (c) four (4) Rebond mold units, identified as EU-R1, EU-R2, EU-R3, and EU-R4, with a total maximum capacity of bonding 9.6 tons per hour of scrap foam, exhausted through four (4) stacks (S/V ID 28, 29, 35, 36) respectively;
- (d) one (1) source-wide adhesive application operation, with emissions venting inside the plant;
- (e) one (1) source-wide chemical solvent usage operation, with emissions venting inside the plant;
- (f) one (1) Variable Pressure Foaming (VPF) line, constructed in 2001, with a maximum capacity of producing 800,000,000 board feet of foam per year, with a carbon adsorber to control VOC emissions, exhausted through two (2) stacks (ID Nos. 39 and 40). Alternately, this line also has the capacity to produce a small amount of foam by pouring using a maximum of 4,000,000 pounds per year of MDI and 447,329 pounds per year of methylene chloride; and
- (g) The following units emitting greater than 1 pound per day but less than 5 pounds per day or 1 ton per year of a single HAP:
 - (1) TDI/MDI Storage Tanks [326 IAC 14, 40 CFR Part 63.1290 through 63.1309, Subpart III].

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 General Provisions Relating to HAPs [326 IAC 20-1-1][40 CFR Part 63, Subpart A]

The provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the flat block pour line (EU-PL), the four (4) Rebond mold units (EU-R1, EU-R2, EU-R3, and EU-R4), the Variable Pressure Foaming Line (VPF), and the TDI/MDI storage tanks described in this section except when otherwise specified in 40 CFR Part 63, Subpart III.

D.1.2 Flexible Polyurethane Foam Production NESHAP Compliance Dates [326 IAC 2-7-5] [40 CFR Part 63.1291, Subpart III] [326 IAC 20-22-1]

- (a) The foam manufacturing process at this source is a slabstock polyurethane foam manufacturing operation.
- (b) Pursuant to 40 CFR 63.1291(a), the new VPF line, the existing flat block pour line, the four (4) existing Rebond mold units, and the TDI/MDI storage tanks shall be in

compliance with all provisions of this rule no later than October 8, 2001.

D.1.3 Flexible Polyurethane Foam Production NESHAP [326 IAC 2-7-5] [40 CFR Part 63.1294, Subpart III][326 IAC 20-22-1]

Pursuant to 40 CFR 63.1294, this source shall comply with the provisions of the section which are as follows:

- (a) Diisocyanate storage vessels.
Diisocyanate storage vessels shall be equipped with either a system meeting the requirements in paragraph (a)(1) below, or a carbon adsorption system meeting the requirements of paragraph (a)(2) below.
 - (1) The storage vessel shall be equipped with a vapor return line from the storage vessel to the tank truck or rail car that is connected during unloading.
 - (i) During each unloading event, the vapor return line shall be inspected for leaks by visual, audible, or any other detection method.
 - (ii) When a leak is detected, it shall be repaired as soon as practicable, but not later than the subsequent unloading event.
 - (2) The storage vessel shall be equipped with a carbon adsorption system, meeting the monitoring requirements of 40 CFR 63.1303(a), that routes displaced vapors through activated carbon before being discharged to the atmosphere. The Permittee shall replace the existing carbon with fresh carbon upon indication of breakthrough before the next unloading event.
- (b) Transfer pumps in diisocyanate service.
Each transfer pump in diisocyanate service shall meet the requirements of paragraph (b)(1) or (b)(2) below.
 - (1) The pump shall be a sealless pump; or
 - (2) The pump shall be a submerged pump system meeting the requirements in paragraphs (b)(2)(i) through (iii) listed below.
 - (i) The pump shall be completely immersed in bis(2-ethylhexyl)phthalate (DEHP, CAS #118-81-7), 2(methyloctyl)phthalate (DINP, CAS #68515-48-0), or another neutral oil.
 - (ii) The pump shall be visually monitored weekly to detect leaks,
 - (iii) When a leak is detected, it shall be repaired in accordance with the procedures in paragraphs (b)(2)(iii)(A) and (B) below, except as provided in paragraph (d) below.
 - (A) The leak shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected.
 - (B) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected. First attempts at repair include, but are not limited to, the following practices where practicable:
 - (1) Tightening of packing gland nuts.
 - (2) Ensuring that the seal flush is operating at design pressure and temperature.
- (c) Other components in diisocyanate service.
If evidence of a leak is found by visual, audible, or any other detection method, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in paragraph (d) below. The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

- (d) Delay of repair.
 - (1) Delay of repair of equipment for which leaks have been detected is allowed for equipment that is isolated from the process and that does not remain in diisocyanate service.
 - (2) Delay of repair for valves and connectors is also allowed if:
 - (i) The owner or operator determines that diisocyanate emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and
 - (ii) The purged material is collected and destroyed or recovered in a control device when repair procedures are effected.
 - (3) Delay of repair for pumps is also allowed if repair requires replacing the existing seal design with a sealless pump, and repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

D.1.4 Flexible Polyurethane Foam Production NESHAP [326 IAC 2-7-5] [40 CFR Part 63.1299, Subpart III][326 IAC 20-22-1]

Pursuant to 40 CFR 63.1299, this source complying with the source-wide emission limitation option provided in 40 CFR 63.1293(b) shall control HAP ABA storage and equipment leak emissions, HAP ABA emissions from the production line (which includes the existing flat block pour line and the new VPF line), and equipment cleaning HAP emissions in accordance with the provisions in 40 CFR 63.1299. Compliance shall be determined on a rolling annual basis in accordance with 40 CFR 63.1299(a).

- (a) Rolling annual compliance.
Under the rolling annual compliance provisions, actual source-wide HAP ABA storage and equipment leak emissions, HAP ABA emissions from the production line, and equipment cleaning HAP emissions are compared to allowable source-wide emissions for each consecutive 12-month period. The allowable source-wide HAP emission level is calculated based on the production for the 12-month period, resulting in a potentially different allowable level for each 12-month period. While compliance is on an annual basis, compliance shall be determined monthly for the preceding 12-month period. The actual source-wide HAP emission level for a consecutive 12-month period shall be determined using the procedures in 40 CFR 63.1299(c)(1) through (4), listed in paragraphs (b)(1) through (4) below. The allowable HAP emission level for a consecutive 12-month period shall be determined using the procedures in 40 CFR 63.1299(d), listed in paragraph (c) below.
- (b) Procedures for determining actual source-wide HAP emissions.
The actual source-wide HAP ABA storage and equipment leak emissions, HAP ABA emissions from the production line, and equipment cleaning HAP emissions shall be determined using the procedures in 40 CFR 63.1299. Actual source-wide HAP emissions for each individual month shall be determined using the procedures specified in paragraphs (b)(1) through (3) below.
 - (1) Actual source-wide HAP emissions for a month shall be determined using Equation 5 and the information determined in accordance with paragraphs (b)(2) and (3) below.

$$PWE_{\text{actual}} = \sum_i^n (ST_{i, \text{begin}} - ST_{i, \text{end}} + ADD_i) \quad (\text{Equation 5})$$

Where:

PWE_{actual} = Actual source-wide HAP ABA and equipment cleaning HAP emissions for a month, pounds/month.
 n = Number of HAP ABA storage vessels.
 $ST_{i, begin}$ = Amount of HAP ABA in storage vessel i at the beginning of the month, pounds, determined in accordance with the procedures listed in paragraph (b)(2) below.
 $ST_{i, end}$ = Amount of HAP ABA in storage vessel i at the end of the month, pounds, determined in accordance with the procedures listed in paragraph (b)(2) below.
 ADD_i = Amount of HAP ABA added to storage vessel i during the month, pounds, determined in accordance with the procedures listed in paragraph (b)(3) below.

- (2) The amount of HAP ABA in a storage vessel shall be determined by monitoring the HAP ABA level in the storage vessel in accordance with 40 CFR 63.1303(d).
 - (3) The amount of HAP ABA added to a storage vessel for a given month shall be the sum of the amounts of all individual HAP ABA deliveries that occur during the month. The amount of each individual HAP ABA delivery shall be determined in accordance with 40 CFR 63.1303(e).
 - (4) Actual source-wide HAP emissions for each consecutive 12-month period shall be calculated as the sum of actual monthly source-wide HAP emissions for each of the individual 12 months in the period, calculated in accordance with paragraphs (b)(1) through (3) above.
- (c) Allowable source-wide HAP emissions for a consecutive 12-month period shall be calculated as the sum of allowable monthly source-wide HAP emissions for each of the individual 12 months in the period. Allowable source-wide HAP emissions for each individual month shall be calculated using Equation 6.

$$emiss_{allow, month} = \sum_{j=1}^m \left(\sum_{i=1}^n \frac{(limit_i)(polyol_i)}{100} \right) j \quad (\text{Equation 6})$$

Where:

$emiss_{allow, month}$ = Allowable HAP ABA storage and equipment leak emissions, HAP ABA emissions from the production line, and equipment cleaning HAP emissions from the slabstock foam production source for the month, pounds.
 m = Number of slabstock foam production lines.
 $polyol_i$ = Amount of polyol used in the month in the production of foam grade i on foam production line j, determined in accordance with 40 CFR 63.1303(b), pounds.
 n = Number of foam grades produced in the month on foam production line j.
 $limit_i$ = HAP ABA formulation limit for foam grade i, parts HAP ABA per 100 parts polyol. The HAP ABA formulation limits are determined in accordance with 40 CFR 63.1297(d).

D.1.5 Flexible Polyurethane Foam Production NESHAP [326 IAC 2-7-5] [40 CFR Part 63.1301, Subpart III][326 IAC 20-22-1]

The requirements of 40 CFR 63.1301 apply to the four (4) existing Rebond mold units. Pursuant to 40 CFR 63.1301, the Permittee shall comply with the provisions in paragraphs (a) and (b) below.

- (a) A HAP or HAP-based material shall not be used as an equipment cleaner at a rebond foam source.
- (b) A HAP-based mold release agent shall not be used in a rebond foam source.

D.1.6 Volatile Organic Compounds (VOC) [326 IAC 2-2]

The polyurethane foam production plant shall limit the VOC emissions from the emission units identified as the pourline (EU-PL), flame laminators #1 and #2 (EU-F1, EU-F2), four (4) rebond molding units (EU-R1, EU-R2, EU-R3, EU-R4), three (3) natural gas boilers (EU-B1, EU-B2, EU-B3) identified in Section D.2, adhesive application operations, chemical solvent usage, and the VPF line such that total source-wide VOC potential to emit is less than 250 tons per twelve (12) consecutive month period:

- (a) The total VOC usage at the pourline facility identified as (EU-PL) and the VPF line shall be limited such that VOC emissions do not exceed 164.64 tons per twelve (12) consecutive month period. Emissions shall be calculated using the following:

- (1) Emissions from TDI and MDI usage in the pourline facility (EU-PL) shall be equal to a 0.12 pounds VOC per hour emission rate;
- (2) VOC emissions from amine catalyst usage in the pourline (EU-PL) and the VPF line shall be calculated using the following equations:

VOC emissions from pourline (EU-PL) (tons) =
Amine catalyst usage (gal) x density (lbs/gal) x tertiary amine % (weight) x 1 ton / 2000 lbs

VOC emissions from VPF line (tons) =
Amine catalyst usage (gal) x density (lbs/gal) x tertiary amine % (weight) x 1 ton / 2000 lbs x (1 - overall tertiary amine control efficiency of carbon adsorber on VPF line)

- (A) The amine catalyst is comprised of volatile organics and non-volatile organics that are consumed in foam production process. Based on manufacturers data, the volatile organic constituent of the amine catalyst is the tertiary amine. Therefore, VOC emissions from the amine catalyst shall be equivalent to the percent by weight of the tertiary amine constituent as shown above.
- (3) VOC emissions from TDI and MDI usage in the VPF line shall be calculated using the following equation:

VOC emissions from VPF line (tons) =
TDI or MDI usage (lbs) x 0.0016% x 1 ton / 2000 lbs x (1 - overall VOC control efficiency of carbon adsorber on VPF line)

where:

TDI or MDI usage (lbs) = TDI or MDI containing pre-polymer usage (gal) x density (lbs/gal) x TDI or MDI % (weight)

- (4) VOC emissions from the VPF line shall be calculated based on the use of a carbon adsorber with a minimum total VOC (including TDI, MDI, and tertiary amine VOC) overall control efficiency of 51%; and

- (5) This source will limit the production of polyurethane foam in the VPF line to a maximum of 800,000,000 board feet per year.
- (b) The VOC emissions from Flame Laminator #2 (EU-F2) shall be limited to less than 25.0 tons per year based on the following:
 - (1) This operating limit was based on a stack test emission factor of 6.5 lbs VOC per hour, and a foam burn-off range between 0.015 inches and 0.150 inches of foam. If the results of the stack testing required in this permit indicate a higher VOC emission rate, the limited hours of operation shall be adjusted accordingly to limit potential VOC emissions from EU-F2 to less than 25.0 tons per year.
- (c) Flame Laminator #1 (EU-F1) emissions shall be based on a VOC emission rate of 6.5 pounds per hour. If the results of the stack testing required in this permit indicates a higher VOC emission rate, that rate shall be used to determine emissions from EU-F1.
- (d) The VOC emissions from the four (4) rebond molding facilities (EU-R1, EU-R2, EU-R3, EU-R4) are based on a total emission factor of 0.14 lbs VOC/hr. This factor shall be used when calculating VOC emissions. If the results of the stack testing required in this permit indicates a higher VOC emission rate, that rate shall be used to determine emissions from the four (4) rebond molding facilities (EU-R1, EU-R2, EU-R3, EU-R4).

Compliance with these conditions shall limit source-wide VOC emissions to less than 250 tons per year and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) not applicable.

D.1.7 Volatile Organic Compounds (VOCs) [326 IAC 8-1-6]

- (a) The facility identified as Flame Laminator #2 (EU-F2) shall be limited to no more than 7,380 hours of operation per twelve (12) consecutive month period. This operating limit is required to limit the potential to emit VOC to less than 25.0 tons per year to render the requirements of 326 IAC 8-1-6 (General Reduction Requirements) not applicable.
 - (1) This operating limit was based on a stack test emission factor of 6.5 lbs VOC per hour, and a foam burn-off range between 0.015 inches and 0.150 inches of foam. If the results of the stack testing required in this permit indicate a higher VOC emission rate, the limited hours of operation shall be adjusted accordingly to limit the potential to emit VOC from EU-F2 to less than 25.0 tons per year.
- (b) Pursuant to 326 IAC 8-1-6 (New Facilities, General Reduction Requirements), the Best Available Control Technology (BACT) for the VPF line shall be the following:
 - (1) Operation of the carbon adsorber to control total VOC emissions from the VPF line at all times that the VPF line is in operation. The carbon adsorber shall operate at a minimum total VOC (including TDI, MDI, and tertiary amine VOC) overall control efficiency of 51%.
 - (2) The production of polyurethane foam in the VPF line shall be limited to a maximum of 800,000,000 board feet per year. This production limit will limit the usage of tertiary amines and TDI such that the emissions of VOC will be limited to 14.6 tons per year after control by the carbon adsorber.

Emissions shall be calculated using the following:

- (A) VOC emissions from amine catalyst usage in the VPF line shall be calculated using the following equation:

VOC emissions from VPF line (tons) =
Amine catalyst usage (gal) x density (lbs/gal) x tertiary amine % (weight)
x 1 ton / 2000 lbs x (1 - overall tertiary amine control efficiency of carbon
adsorber on VPF line)

- (i) The amine catalyst is comprised of volatile organics and non-volatile organics that are consumed in foam production process. Based on manufacturers data, the volatile organic constituent of the amine catalyst is the tertiary amine. Therefore, VOC emissions from the amine catalyst shall be equivalent to the percent by weight of the tertiary amine constituent as shown above.

- (B) VOC emissions from TDI and MDI usage in the VPF line shall be calculated using the following equation:

VOC emissions from VPF line (tons) =
TDI or MDI usage (lbs) x 0.0016% x 1 ton / 2000 lbs x (1 - overall VOC
control efficiency of carbon adsorber on VPF line)

where:

TDI or MDI usage (lbs) = TDI or MDI containing pre-polymer usage (gal)
x density (lbs/gal) x TDI or MDI % (weight)

- (C) VOC emissions from the VPF line shall be calculated based on the use of a carbon adsorber with a minimum total VOC (including TDI, MDI, and tertiary amine VOC) overall control efficiency of 51%.

D.1.8 Particulate Matter (PM) [326 IAC 6-3]

- (a) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the four (4) rebond mold unit facilities (EU-R1, EU-R2, EU-R3, EU-R4) shall not exceed a total 18.66 pounds per hour when operating at a total process weight rate of 9.6 tons per hour.
- (b) Pursuant to 326 IAC 6-3 (Process Operations), the total allowable PM emission rate from the two (2) propane-fired (natural gas backup) flame laminator machines (EU-F1, EU-F2) shall not exceed 4.1 pounds per hour when operating at a total process weight rate of 2,000 pounds per hour.

The pounds per hour limitation's were calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

D.1.9 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the pourline (EU-PL), Flame Laminator #1 (EU-F1), Flame Laminator #2 (EU-F2), and the VPF line and any control devices.

Compliance Determination Requirements

D.1.10 Testing Requirements [40 CFR 63.1304, Subpart III][326 IAC 2-7-6(1),(6)][326 IAC 20-22-1]

Pursuant to 40 CFR 63.1304, the Permittee shall use the test methods listed below, as applicable, to demonstrate compliance with Subpart III.

- (a) Test method to determine foam properties.
The IFD and density of each grade of foam produced during each run of foam shall be determined using ASTM D3574-91, Standard Test Methods for Flexible Cellular Materials--Slab, Bonded, and Molded (incorporation by reference--see 40 CFR 63.14), using a sample of foam cut from the center of the foam bun. The maximum sample size for which the IFD and density is determined shall not be larger than 24 inches by 24 inches by 4 inches. For grades of foam where the Permittee has designated the HAP ABA formulation limitation as zero, the Permittee is not required to determine the IFD and density in accordance with this paragraph.

D.1.11 Compliance Demonstrations [40 CFR 63.1308, Subpart III][326 IAC 20-22-1]

Pursuant to 40 CFR 63.1308,

- (a) For the Permittee, compliance with the requirements listed in paragraphs (a)(1) through (a)(2) below shall mean compliance with the requirements contained in 40 CFR 63.1293 through 63.1301, absent any credible evidence to the contrary.
 - (1) The requirements described in Tables 3, 4, and 5 of Subpart III; and
 - (2) The requirement to submit a compliance certification annually as required under 40 CFR 63.1306(g).
- (b) All slabstock affected sources.
For slabstock affected sources, failure to meet the requirements contained in 40 CFR 63.1294 shall be considered a violation of this subpart. Violation of each item listed in the paragraphs (b)(1) through (b)(6) below, as applicable, shall be considered a separate violation.
 - (1) For the Permittee complying with 40 CFR 63.1294(a) in accordance with 40 CFR 63.1294(a)(1), each unloading event that occurs when the diisocyanate storage vessel is not equipped with a vapor return line from the storage vessel to the tank truck or rail car, each unloading event that occurs when the vapor line is not connected, each unloading event that the vapor line is not inspected for leaks as described in 40 CFR 63.1294(a)(1)(i), each unloading event that occurs after a leak has been detected and not repaired, and each calendar day after a leak is detected, but not repaired as soon as practicable;
 - (2) For the Permittee complying with 40 CFR 63.1294(a) in accordance with 40 CFR 63.1294(a)(2), each unloading event that the diisocyanate storage vessel is not equipped with a carbon adsorption system, each unloading event (or each month if more than one unloading event occurs in a month) that the carbon adsorption system is not monitored for breakthrough in accordance with 40 CFR 63.1303(a)(3) or (4), and each unloading event that occurs when the carbon is not replaced after an indication of breakthrough;

- (3) For the Permittee complying with 40 CFR 63.1294(a) in accordance with 40 CFR 63.1294(a)(2) through the alternative monitoring procedures in 40 CFR 63.1303(a)(2), each unloading event that the diisocyanate storage vessel is not equipped with a carbon adsorption system, each time that the carbon adsorption system is not monitored for breakthrough in accordance with 40 CFR 63.1303(a)(3) or (4) at the interval established in the design analysis, and each unloading event that occurs when the carbon is not replaced after an indication of breakthrough;
 - (4) For the Permittee complying with 40 CFR 63.1294(b) in accordance with 40 CFR 63.1294(b)(1), each calendar day that a transfer pump in diisocyanate service is not a sealless pump;
 - (5) For the Permittee complying with 40 CFR 63.1294(b) in accordance with 40 CFR 63.1294(b)(2), each calendar day that a transfer pump in diisocyanate service is not submerged as described in 40 CFR 63.1294(b)(2)(i), each week that the pump is not visually monitored for leaks, each calendar day after 5 calendar days after detection of a leak that a first attempt at repair has not been made in accordance with 40 CFR 63.1294(b)(2)(iii)(B), and the earlier of each calendar day after 15 calendar days after detection of a leak that a leak is not repaired, or a leak is not repaired as soon as practicable, each subsequent calendar day (with the exception of situations meeting the criteria of 40 CFR 63.1294(d));
 - (6) For each affected source complying with 40 CFR 63.1294(c), each calendar day after 5 calendar days after detection of a leak that a first attempt at repair has not been made, and the earlier of each calendar day after 15 calendar days after detection of a leak that a leak is not repaired, or if a leak is not repaired as soon as practicable, each subsequent calendar day (with the exception of situations meeting the criteria of 40 CFR 63.1296(f)).
- (c) Slabstock affected sources complying with the source-wide emission limitation. For the Permittee complying with the source-wide emission limitation as provided in 40 CFR 63.1293(b), failure to meet the requirements contained in 40 CFR 63.1299 shall be considered a violation of this subpart. Violation of each item listed in paragraph (c)(1) below, as applicable, shall be considered a separate violation.
- (1) For each affected source complying with 40 CFR 63.1299 in accordance with the rolling annual compliance option in 40 CFR 63.1299(a), each calendar day in the 12-month period for which the actual HAP ABA emissions exceeded the allowable HAP ABA emissions level, each calendar day in which foam is being poured where the amount of polyol added at the mixhead is not monitored (as required) in accordance with 40 CFR 63.1303(b)(1)(i), each calendar day in a week in which the amount of HAP ABA in a storage vessel is not determined in accordance with 40 CFR 63.1303(d), each delivery of HAP ABA in which the amount of HAP ABA added to the storage vessel is not determined in accordance with 40 CFR 63.1303(e), each calendar day in a 6-month period in which the polyol pumps are not calibrated in accordance with 40 CFR 63.1303(b)(3)(i), and each calendar day after 10 working days after production where the IFD and density of a foam grade are not determined (where required) in accordance with 40 CFR 63.1304(b);
- (d) Molded and rebond foam affected sources.
- For the Permittee, a rebond foam affected source, failure to meet the requirements contained in 40 CFR 63.1301 shall be considered a violation of this subpart. Violation of each item listed in the following paragraphs shall be considered a separate violation.
- (1) For each rebond foam affected source subject to the provisions of 40 CFR 63.1301(a), each calendar day that a HAP-based material is used as an equipment cleaner; and

- (2) For each rebond foam affected source complying with 40 CFR 63.1301(b), each calendar day that a HAP-based mold release agent is used.

D.1.12 Testing Requirements [326 IAC 2-7-6(1),(6)]

- (a) The following VOC testing requirement applies to the following facilities:

- (i) pourline (EU-PL);
- (ii) flame laminators #1 and #2 (EU-F1, EU-F2);
- (iii) rebond molding (EU-R1, EU-R2, EU-R3, EU-R4);

During the period between 24 and 36 months after issuance of this permit, the Permittee shall perform VOC testing, to confirm the VOC emissions stated in D.1.1 and D.1.2, utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. The Permittee shall conduct the performance test in accordance with Section C - Performance Testing. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

- (b) The following PM and PM-10 testing requirement applies to the rebond molding facilities identified as EU-R1, EU-R2, EU-R3, and EU-R4 (S/V ID 28,29,35,36);

During the period between 24 and 36 months after issuance of this permit, the Permittee shall perform PM testing utilizing Methods 5 or 17 (40 CFR 60, Appendix A, or other methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. The Permittee shall conduct the performance test in accordance with Section C - Performance Testing. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

- (c) The following VOC testing requirement applies to the VPF line:

In order to demonstrate compliance with Conditions D.1.6 and D.1.7, the Permittee shall perform VOC testing by no later than May, 2007, on the carbon adsorber controlling VOC emissions from the VPF line utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

D.1.13 Volatile Organic Compounds (VOC)

Compliance with the VOC content and usage limitations contained in Conditions D.1.6 and D.1.7 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) using formulation data supplied by the coating manufacturer. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

D.1.14 VOC Emissions

Compliance with Conditions D.1.6 and D.1.7 shall be demonstrated at the end of each month based on the total volatile organic compound usage for the most recent twelve (12) month period.

D.1.15 VOC Emissions Control

- (a) The carbon adsorber controlling VOC emissions from the VPF line shall be in operation at all times that the VPF line is in operation to ensure compliance with conditions D.1.6 and D.1.7.
- (b) The carbon adsorber controlling VOC emissions from the VPF line shall maintain a minimum total VOC overall control efficiency of 51%.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.16 Monitoring Requirements [40 CFR 63.1303, Subpart III][326 IAC 20-22-1]

Pursuant to 40 CFR 63.1303, the Permittee shall comply with each applicable monitoring provision of 40 CFR 63.1303 as listed below.

- (a) Monitoring requirements for storage vessel carbon adsorption systems.
The Permittee using a carbon adsorption system to meet the requirements of 40 CFR 63.1294(a) shall monitor the concentration level of the HAP or the organic compounds in the exhaust vent stream (or outlet stream exhaust) from the carbon adsorption system at the frequency specified in (a)(1) or (2) below in accordance with either (a)(3) or (4) below.
 - (1) The concentration level of HAP or organic compounds shall be monitored during each unloading event, or once per month during an unloading event if multiple unloading events occur in a month.
 - (2) As an alternative to monthly monitoring, the Permittee can set the monitoring frequency at an interval no greater than 20 percent of the carbon replacement interval, which is established using a design analysis described below in paragraphs (a)(2)(i) through (iii).
 - (i) The design analysis shall consider the vent stream composition, constituent concentration, flow rate, relative humidity, and temperature.
 - (ii) The design analysis shall establish the outlet organic concentration level, the capacity of the carbon bed, and the working capacity of activated carbon used for the carbon bed, and
 - (iii) The design analysis shall establish the carbon replacement interval based on the total carbon working capacity of the carbon adsorption system and the schedule for filling the storage vessel.
 - (3) Measurements of HAP concentration shall be made using 40 CFR part 60, appendix A, Method 18. The measurement shall be conducted over at least one 5-minute interval during which the storage vessel is being filled.
 - (4) Measurements of organic compounds shall be made using 40 CFR part 60, Appendix A, Method 25A. The measurement shall be conducted over at least one 5-minute interval during which the storage vessel is being filled.
- (b) Monitoring for HAP ABA and polyol added to the foam production line (which includes the existing flat block pour line and the new VPF line) at the mixhead.
 - (1) The Permittee shall comply with the provisions in paragraph (b)(1)(i) below.
 - (i) The Permittee shall continuously monitor the amount of polyol added at the mixhead when foam is being poured, in accordance with paragraphs (b)(2) through (4) below.
 - (2) The owner or operator shall monitor either:
 - (i) Pump revolutions; or
 - (ii) Flow rate.

- (3) The device used to monitor the parameter from paragraph (b)(2) shall have an accuracy to within +/- 2.0 percent of the HAP ABA being measured, and shall be calibrated initially, and periodically, in accordance with paragraph (b)(3)(i) or (ii) below.
 - (i) For polyol pumps, the device shall be calibrated at least once each 6 months.
 - (ii) For HAP ABA pumps, the device shall be calibrated at least once each month.
- (4) Measurements must be recorded at the beginning and end of the production of each grade of foam within a run of foam.
- (c) Monitoring of HAP ABA in a storage vessel.

The amount of HAP ABA in a storage vessel shall be determined weekly by monitoring the HAP ABA level in the storage vessel using a level measurement device that meets the criteria described in paragraphs (c)(1) and either (c)(2) or (c)(3) below.

 - (1) The level measurement device must be calibrated initially and at least once per year thereafter.
 - (2) With the exception of visually-read level measurement devices (i.e., gauge glass), the device must have either a digital or printed output.
 - (3) If the level measurement device is a visually-read device, the device must be equipped with permanent graduated markings to indicate HAP ABA level in the storage tank.
- (d) Monitoring of HAP ABA added to a storage vessel.

The amount of HAP ABA added to a storage vessel during a delivery shall be determined in accordance with either paragraphs (d)(1), (2), or (3) of this section.

 - (1) The volume of HAP ABA added to the storage vessel shall be determined by recording the volume in the storage vessel prior to the delivery and the volume after the delivery, provided that the storage tank level measurement device used to determine the levels meets the criteria in paragraph (c) above.
 - (2) The volume of HAP ABA added to the storage vessel shall be determined by monitoring the flow rate using a device with an accuracy of +/- 2.0 percent, and calibrated initially and at least once each six months thereafter.
 - (3) The weight of HAP ABA added to the storage vessel shall be calculated as the difference of the full weight of the transfer vehicle prior to unloading into the storage vessel and the empty weight of the transfer vehicle after unloading into the storage vessel. The weight shall be determined using a scale meeting the requirements of either paragraph (d)(3)(i) or (ii) below.
 - (i) A scale approved by the State or local agencies using the procedures contained in Handbook 44, Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices 1998 (incorporation by reference--see 40 CFR 63.14).
 - (ii) A scale determined to be in compliance with the requirements of the National Institute of Standards and Technology Handbook 44 at least once per year by a registered scale technician.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.17 Record Keeping Requirements [40 CFR 63.1307, Subpart III][326 IAC 20-22-1]

Pursuant to 40 CFR 63.1307, the applicable records designated in paragraphs (a) through (c) below shall be maintained by the Permittee.

- (a) Storage vessel records.
 - (1) A list of diisocyanate storage vessels, along with a record of the type of control utilized for each storage vessel.

- (2) For storage vessels complying through the use of a carbon adsorption system, the records listed in paragraphs (a)(2)(i) or (ii), and paragraph (a)(2)(iii) of this section.
 - (i) Records of dates and times when the carbon adsorption system is monitored for carbon breakthrough and the monitoring device reading, when the device is monitored in accordance with 40 CFR 63.1303(a); or
 - (ii) For affected sources monitoring at an interval no greater than 20 percent of the carbon replacement interval, in accordance with 40 CFR 63.1303(a)(2), the records listed in paragraphs (a)(2)(ii)(A) and (B) below.
 - (A) Records of the design analysis, including all the information listed in 40 CFR 63.1303(a)(2)(i) through (iii), and
 - (B) Records of dates and times when the carbon adsorption system is monitored for carbon breakthrough and the monitoring device reading.
 - (iii) Date when the existing carbon in the carbon adsorption system is replaced with fresh carbon.
- (3) For storage vessels complying through the use of a vapor return line, paragraphs (a)(3)(i) through (iii) below.
 - (i) Dates and times when each unloading event occurs and each inspection of the vapor return line for leaks occurs.
 - (ii) Records of dates and times when a leak is detected in the vapor return line.
 - (iii) Records of dates and times when a leak is repaired.
- (b) Equipment leak records.
 - (1) A list of components as specified below in paragraph (b)(1)(i).
 - (i) For all affected sources, a list of components in diisocyanate service,
 - (2) For transfer pumps in diisocyanate service, a record of the type of control utilized for each transfer pump and the date of installation.
 - (3) When a leak is detected as specified in 40 CFR 63.1294(b)(2)(ii) and 40 CFR 63.1294(c), the requirements listed in paragraphs (b)(3)(i) and (ii) below apply:
 - (i) Leaking equipment shall be identified in accordance with the requirements in paragraphs (b)(3)(i)(A) and (B) below.
 - (A) A readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.
 - (B) The identification on equipment, other than a valve, may be removed after it has been repaired.
 - (ii) The information in paragraphs (b)(3)(ii)(A) through (H) shall be recorded for leaking components.
 - (A) The instrument and operator identification numbers and the equipment identification number.
 - (B) The date the leak was detected and the dates of each attempt to repair the leak.
 - (C) Repair methods applied in each attempt to repair the leak.
 - (D) The words "above leak definition" if the maximum instrument reading measured by the methods specified in 40 CFR 63.1304(a) after each repair attempt is equal or greater than the leak definitions for the specified equipment.
 - (E) The words "repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - (F) The expected date of the successful repair of the leak if a leak

- is not repaired within 15 calendar days.
 - (G) The date of successful repair of the leak.
 - (H) The date the identification is removed.
- (c) HAP ABA records.
 - (1) Source-wide limitations - rolling annual compliance and monthly compliance alternative records.

The Permittee complying with the source-wide limitations of 40 CFR 63.1299, and the rolling annual compliance provisions in 40 CFR 63.1299(a), shall maintain the records listed in paragraphs (c)(1)(i) through (c)(1)(vii) below.

 - (i) Daily records of the information listed in paragraphs (c)(1)(i)(A) through (C) of this section.
 - (A) A log of foam runs each day. For each run, the log shall include a list of the grades produced during the run.
 - (B) Results of the density and IFD testing for each grade of foam produced during each run of foam, conducted in accordance with the procedures in 40 CFR 63.1304(b). The results of this testing shall be recorded within 10 working days of the production of the foam. For grades of foam where the Permittee has designated the HAP ABA formulation limitation as zero, the Permittee is not required to keep records of the IFD and density.
 - (C) With the exception of those grades for which the Permittee has designated zero as the HAP ABA formulation limitation, the amount of polyol added to the slabstock foam production line at the mixhead for each grade produced during each run of foam, determined in accordance with 40 CFR 63.1303(b).
 - (ii) For sources complying with the source-wide emission limitation, weekly records of the storage tank level, determined in accordance with 40 CFR 63.1303(d).
 - (iii) Monthly records of the information listed below in paragraphs (c)(1)(iii)(A) through (E).
 - (A) A listing of all foam grades produced during the month,
 - (B) For each foam grade produced, the residual HAP formulation limitation, calculated in accordance with 40 CFR 63.1297(d).
 - (C) With the exception of those grades for which the Permittee has designated zero as the HAP ABA formulation limitation, the total amount of polyol used in the month for each foam grade produced.
 - (D) The total allowable HAP ABA and equipment cleaning emissions for the month, determined in accordance with 40 CFR 63.1297(b)(2).
 - (E) The total actual source-wide HAP ABA emissions for the month, determined in accordance with 40 CFR 63.1299(c)(1), along with the information listed in paragraphs (c)(1)(iii)(E)(1) and (2) below.
 - (1) The amounts of HAP ABA in the storage vessel at the beginning and end of the month, determined in accordance with 40 CFR 63.1299(c)(2); and
 - (2) The amount of each delivery of HAP ABA to the storage vessel, determined in accordance with 40 CFR 63.1299(c)(3).
 - (iv) Each source complying with the rolling annual compliance provisions of 40 CFR 63.1299(a) shall maintain the records listed in paragraphs (c)(1)(iv)(A) and (B) below.
 - (A) The sum of the total allowable HAP ABA and equipment

cleaning HAP emissions for the month and the previous 11 months.

- (B) The sum of the total actual HAP ABA and equipment cleaning HAP emissions for the month and the previous 11 months.
- (v) Records of all calibrations for each device used to measure polyol added at the mixhead, conducted in accordance with 40 CFR 63.1303(b)(3).
- (vi) Records of all calibrations for each device used to measure the amount of HAP ABA in the storage vessel, conducted in accordance with 40 CFR 63.1303(d)(1).
- (vii) Records to verify that all scales used to measure the amount of HAP ABA added to the storage vessel meet the requirements of 40 CFR 63.1303(e)(3). For scales meeting the criteria of 40 CFR 63.1303(e)(3)(i), this documentation shall be in the form of written confirmation of the State or local approval. For scales complying with 40 CFR 63.1303(e)(3)(ii), this documentation shall be in the form of a report provided by the registered scale technician.
- (d) The Permittee following the compliance methods in 40 CFR 63.1308(b)(1) and (c)(1) shall maintain records of each use of a vapor return line during unloading, of any leaks detected during unloading, and of repairs of leaks detected during unloading.
- (e) The Permittee subject to 40 CFR 63.1300 or 40 CFR 63.1301 of this subpart shall maintain a product data sheet for each compound other than diisocyanates used to flush the mixhead and associated piping during periods of startup or maintenance, which includes the HAP content, in kg of HAP/kg solids (lb HAP/lb solids), of each solvent other than diisocyanates used to flush the mixhead and associated piping during periods of startup or maintenance.
- (f) The Permittee subject to 40 CFR 63.1300 or Sec. 63.1301 of this subpart shall maintain a product data sheet for each mold release agent used that includes the HAP content, in kg of HAP/kg solids (lb HAP/lb solids), of each mold release agent.

D.1.18 Record Keeping Requirements

- (a) To document compliance with Condition D.1.6, the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in Condition D.1.6.
 - (1) The amount and VOC (tertiary amine) content of each amine catalyst, raw material, adhesive, and chemical solvent used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used. Solvent usage records shall differentiate between those added to raw materials and those used as cleanup solvents;
 - (2) A log of the month of use;
 - (3) The volume weighted VOC content of the adhesives and solvents used for each month;
 - (4) The cleanup solvent usage for each month;
 - (5) The total VOC usage, including tertiary amine usage, for each month; and
 - (6) The weight of VOCs emitted for each compliance period.

- (b) To document compliance with Conditions D.1.6(b) and D.1.7(a), a cumulative operating time meter, equipped with a continuous recorder for documenting the time of operation for the Flame Laminator #2 (EU-F2), shall be permanently installed and operated at all times when the unit is in operation.
- (c) To document compliance with Condition D.1.7(b), the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in Condition D.1.7(b).
 - (1) The amount and VOC (tertiary amine) content of each amine catalyst and other raw material used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used.
 - (2) A log of the month of use;
 - (3) The total VOC usage, including tertiary amine usage, for each month; and
 - (4) The weight of VOCs emitted for each compliance period.
- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.19 Reporting Requirements [40 CFR 63.1306, Subpart III][326 IAC 20-22-1]

Pursuant to 40 CFR 63.1306, the Permittee shall comply with each applicable reporting provision in this section.

- (a) Initial notification.
The Permittee shall submit an initial notification in accordance with 40 CFR 63.9(b).
- (b) Application for approval of construction or reconstruction.
The Permittee shall submit an application for approval of construction or reconstruction in accordance with the provisions of 40 CFR 63.5(d).
- (c) Precompliance report.
The Permittee shall submit a precompliance report no later than 12 months before the compliance date. This report shall contain the information listed in paragraphs (c)(1) through (c)(8) below, as applicable.
 - (1) Whether the source will comply with the emission point specific limitations described in 40 CFR 63.1293(a), or with the source-wide emission limitation described in 40 CFR 63.1293(b).
 - (2) For a source complying with the emission point specific limitations, whether the source will comply on a rolling annual basis in accordance with 40 CFR 63.1297(b), or will comply with the monthly alternative for compliance contained in 40 CFR 63.1297(c).
 - (3) For a source complying with the source-wide emission limitation, whether the source will comply on a rolling annual basis in accordance with 40 CFR 63.1299(a), or will comply with the monthly alternative for compliance contained in 40 CFR 63.1299(b).
 - (4) A description of how HAP ABA and/or polyol added at the mixhead will be monitored. If the owner or operator is developing an alternative monitoring program, the alternative monitoring program containing the information in 40 CFR 63.1303(b)(5)(i) through (iv) shall be submitted.
 - (5) Notification of the intent to use a recovery device to comply with the provisions of 40 CFR 63.1297 or 40 CFR 63.1299.
 - (6) For slabstock affected sources complying with 40 CFR 63.1297 or 40 CFR

- 63.1299 using a recovery device, the continuous recovered HAP ABA monitoring and record keeping program, developed in accordance with 40 CFR 63.1303(c).
- (7) For sources complying with the source-wide emission limitation, a description of how the amount of HAP ABA in a storage vessel shall be determined.
- (8) For sources complying with the source-wide emission limitation, a description of how the amount of HAP ABA added to a storage vessel during a delivery will be monitored. If the owner or operator is developing an alternative monitoring program, the alternative monitoring program containing the information in 40 CFR 63.1303(e)(4)(i) through (iv) shall be submitted.
- (9) If the Administrator does not notify the owner or operator of objections to an alternative monitoring program submitted in accordance with (c)(4) or (c)(6) above, or a recovered HAP ABA monitoring and record keeping program submitted in accordance with (c)(7) above, the program shall be deemed approved 45 days after its receipt by the Administrator.
- (d) Notification of compliance status.
The Permittee shall submit a notification of compliance status report no later than 180 days after the compliance date. For slabstock affected sources, this report shall contain the information listed in paragraphs (d)(1) and (2) below, as applicable. This report shall contain the information listed in paragraph (d)(3) for rebond foam processes.
- (1) A list of diisocyanate storage vessels, along with a record of the type of control utilized for each storage vessel.
- (2) For transfer pumps in diisocyanate service, a record of the type of control utilized for each transfer pump.
- (3) A statement that the rebond foam affected source is in compliance with 40 CFR 63.1301, or that rebond processes at an affected source are in compliance with 40 CFR 63.1301.
- (e) Semiannual reports.
The Permittee shall submit a report containing the information specified in paragraphs (e)(1) through (4) below semiannually no later than 60 days after the end of each 180 day period. The first report shall be submitted no later than 240 days after the date that the Notification of Compliance Status is due and shall cover the 6-month period beginning on the date that the Notification of Compliance Status Report is due.
- (1) For slabstock affected sources complying with the rolling annual compliance provisions of 40 CFR 63.1299, the allowable and actual HAP ABA emissions (or allowable and actual source-wide HAP emissions) for each of the 12-month periods ending on each of the six months in the reporting period. This information is not required to be included in the initial semi-annual compliance report.
- (2) For sources complying with the storage vessel provisions of 40 CFR 63.1294(a) using a carbon adsorption system, unloading events that occurred after breakthrough was detected and before the carbon was replaced.
- (3) Any equipment leaks that were not repaired in accordance with 40 CFR 63.1294(b)(2)(iii) and 40 CFR 63.1294(c).
- (4) Any leaks in vapor return lines that were not repaired in accordance with 40 CFR 63.1294(a)(1)(ii).
- (f) Other reports.
- (1) Change in selected emission limitation.
The Permittee electing to change their slabstock flexible polyurethane foam emission limitation (from emission point specific limitations to a source-wide emission limitation, or vice versa), selected in accordance with 40 CFR 63.1293, shall notify the Administrator no later than 180 days prior to the change.

- (2) Change in selected compliance method.
The Permittee changing the period of compliance for 40 CFR 63.1299 (between rolling annual and monthly) shall notify the Administrator no later than 180 days prior to the change.
- (g) Annual compliance certifications.
The Permittee subject to the provisions in 40 CFR 63.1293 through 63.1301 shall submit a compliance certification annually.
 - (1) The compliance certification shall be based on information consistent with that contained in 40 CFR 63.1308 of this section, as applicable.
 - (2) A compliance certification required pursuant to a State or local operating permit program may be used to satisfy the requirements of this section, provided that the compliance certification is based on information consistent with that contained in 40 CFR 63.1308 of this section, and provided that the Administrator has approved the State or local operating permit program under part 70 of this chapter.
 - (3) Each compliance certification submitted pursuant to this section shall be signed by a responsible official of the company that owns or operates the affected source.

D.1.20 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.6 and D.1.7 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

Part 70 Quarterly Report

Source Name: Foamex, L.P.
Source Address: 2211 South Wayne St., Auburn, IN 46706
Mailing Address: 2211 South Wayne St., Auburn, IN 46706
Part 70 Permit No.: T033-7625-00047
Facility: Pourline (EU-PL) and VPF line
Parameter: Total VOC emissions shall be limited to 164.64 tons per twelve (12) consecutive month period.

Limit: Emissions shall be calculated using the following:

- (1) Emissions from TDI and MDI usage in the pourline facility (EU-PL) shall be equal to a 0.12 pounds VOC per hour emission rate as determined in 1990 stack testing;
- (2) VOC emissions from amine catalyst usage in the pourline (EU-PL) and the VPF line shall be calculated using the following equations:
VOC emissions from pourline (EU-PL) (tons) = Amine catalyst usage (gal) x density (lbs/gal) x tertiary amine % (weight) x 1 ton / 2000 lbs
VOC emissions from VPF line (tons) = Amine catalyst usage (gal) x density (lbs/gal) x tertiary amine % (weight) x 1 ton / 2000 lbs x (1 - overall tertiary amine control efficiency of carbon adsorber on VPF line)
- (3) VOC emissions from TDI and MDI usage in the VPF line shall be calculated using the following equation:
VOC emissions from VPF line (tons) = TDI or MDI usage (lbs) x 0.0016% x 1 ton / 2000 lbs x (1 - overall VOC control efficiency of carbon adsorber on VPF line)
where: TDI or MDI usage (lbs) = TDI or MDI containing pre-polymer usage (gal) x density (lbs/gal) x TDI or MDI % (weight)
- (4) VOC emissions from the VPF line shall be calculated based on the use of a carbon adsorber with a minimum total VOC (including TDI, MDI, and tertiary amine VOC) overall control efficiency of 51%; and
- (5) This source will limit the production of polyurethane foam in the VPF line to a maximum of 800,000,000 board feet per year.

YEAR: _____

Month	Total Board Ft. of Foam Produced at VPF Line This Month	Total VOC Emissions from Pourline and VPF Line This Month (tons)	Total VOC Emissions from Pourline and VPF Line Previous 11 months (tons)	12 Month Total VOC Emissions from Pourline and VPF Line (tons/yr)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.

Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

Part 70 Quarterly Report

Source Name: Foamex, L.P.
Source Address: 2211 South Wayne St., Auburn, IN 46706
Mailing Address: 2211 South Wayne St., Auburn, IN 46706
Part 70 Permit No.: T033-7625-00047
Facility: VPF line
Parameter: VOC emissions
Limit: The production of polyurethane foam in the VPF line shall be limited to a maximum of 800,000,000 board feet per year. This production limit will limit the usage of tertiary amines and TDI such that the emissions of VOC will be limited to 14.6 tons per year after control by the carbon adsorber. The carbon adsorber for control of VOC emissions shall be in operation at all times that the VPF line is in operation.

YEAR: _____

Month	Total Board Ft. of Foam Produced this month	Total VOC Emissions this month (tons)	Total VOC Emissions Previous 11 months (tons)	12 Month Total VOC Emissions (tons/yr)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management Office of Air Quality

Addendum to the Technical Support Document for a Part 70 Significant Source Modification and Part 70 Significant Permit Modification

Source Name:	Foamex, L.P.
Source Location:	2211 South Wayne Street, Auburn, Indiana 46706
County:	DeKalb
Source Modification No.:	033-15727-00047
Permit Modification No.:	033-15909-00047
SIC Code:	3086
Permit Reviewer:	Trish Earls/EVP

On September 17, 2003, the Office of Air Quality (OAQ) had a notice published in the Auburn Evening Star, Auburn, Indiana, stating that Foamex, L.P. had applied for a Significant Source Modification for an increase in the methylene chloride blowing agent usage in the existing Variable Pressure Foaming (VPF) line and the change of the minimum required control efficiency for the carbon adsorber controlling TDI, MDI, and tertiary amine VOC emissions from the VPF line from 95% for TDI and MDI emissions and 50% for tertiary amine VOC emissions to a total VOC overall control efficiency of 51%. The notice also stated that OAQ proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On October 10, 2003, Stephen A. Loeschner, a resident of Fort Wayne, Indiana, submitted comments on the proposed permit. The summary of the comments and responses is as follows:

Comment #1

This is a comment on a 326 IAC 2-7 permit draft for Foamex, L.P. ("Foamex") to perform various modifications and operations of new and old equipment in DeKalb County, Indiana as a flexible polyurethane foam producer described in Indiana Department of Environmental Management ("DEM") draft document packages 033-15727-00037 and 033-15909-00037 ("15727, 15909").

Numeric annual emission limit of dichloromethane

Citizens have a rough view of the emission of 42 USC 7412 hazardous air pollutants ("HAP") that is on average about 22 months old in the Toxic Release Inventory ("TRI").

... The information collected under this part is intended to inform the general public and the communities surrounding covered facilities about releases of toxic chemicals[.] ...

40 CFR 372.1

When a permitting agency, such as DEM, allows a polluter, such as Foamex, to dump HAP into the air of the People, said agency reasonably has the obligation to communicate to all what and how much is a permitted emission. Article 4, Section 20 of the Indiana Constitution states:

Every act and joint resolution shall be plainly worded, avoiding, as far as practicable, the use of technical terms.

While it directly binds only the General Assembly, there is reasonably a cascading effect to the IAC and to permits. Further, there remains the obligation to communicate clearly and unambiguously.

There appears within 15909 no list of HAP and corresponding fixed annual emission limitation. This is clear error. One of the reasons for this is the possibility that DEM has imposed no limitation on numerous HAP.

As the common name methylene chloride is listed more clearly as dichloromethane in the TRI, DEM must reasonably list the two as synonyms. As the annual emission limit of dichloromethane of *part* of the Foamex production is the *A. Einstein* calculation mentioned in 40 CFR 63.1297(b)(2) having the quantity of 40 CFR 63.1292 polyol as a dependent variable, and as it appears that DEM has placed no bound on said polyol, the People have no clue as to if there is an annual dichloromethane emission limit from that process, or of the facility.

DEM must establish annual limitations on the emission of dichloromethane for the entire facility, and must obligate calendar quarterly reporting on forms that show the individual monthly emissions and the sum of the preceding 11 months emissions together *with sufficient other data columns* that will allow each monthly dichloromethane value to be checked.

With the facility reporting a dichloromethane dump of 93,882 pounds per year ("ppy") in 2001, the community has already been exposed to a considerable amount of this carcinogen. The idea of permitting an increased use of 427,329 ppy should be viewed as something very non-beneficial. The *facility total* dichloromethane emission should be limited to no more 87,680 ppy (with a simultaneous limit of no more than 7,500 pounds per month) with it up to Foamex how to ration their allocation. Perhaps they would learn how to make their product without dumping so much dichloromethane.

Numeric annual emission limit of brominated diphenyl ethers

It appears that neither 61 FR 68408 *et seq.* (27 December 1996), the proposed rule, nor 63 FR 53980 *et seq.* (7 October 1998), the final rule creating 40 CFR 63.1290 *et seq.* as 40 CFR 63 Subpart III, make any mention of fire retardant components of finished product and production process, nor do they mention any bromine compounds individually or by class, nor do they mention 42 USC 7412(b)(1) polycyclic organic matter ("POM") by class.

There is a strong presumption that Foamex mixes vast quantities of brominated diphenyl ethers ("BDE's," a group of 209 congeners) in several of its products. There is a strong reason to believe that some of the BDE's that Foamex uses fall within the 42 USC 7412(a)(6) definition of hazardous air pollutants. Several of the BDE's that Foamex uses are expected to be POM, defined as:

organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 degrees C.

42 USC 7412(b)(1) Footnote 4

As the 42 USC 7412 law is written to apply to HAP combinations, DEM must reasonably set numeric annual emission limits for each of the following groups no matter that they may total less than 10 tons per year :

monobromodiphenyl ethers	hexabromodiphenyl ethers
dibromodiphenyl ethers	heptabromodiphenyl ethers
tribromodiphenyl ethers	octabromodiphenyl ethers
tetrabromodiphenyl ethers	nonabromodiphenyl ethers
pentabromodiphenyl ethers	decabromodiphenyl ether.

Those omissions from 40 CFR 63 Subpart III do not in any way relieve DEM from its obligation to do a case by case maximum achievable control technology analysis and limit setting for the above 10

identified groups of HAP.

Response #1

Methylene chloride (dichloromethane) emission limits

This modification allows the source to increase the allowable usage of methylene chloride blowing agent in its existing Variable Pressure Foam (VPF) machine. When the VPF line was initially permitted under Significant Source Modification No. 033-13706-00047, issued on June 25, 2001 and Significant Permit Modification No. 033-14184-00047, issued on July 17, 2001, the maximum usage of methylene chloride blowing agent in the VPF line was less than 10 tons per year. However, since the source was an existing major source of HAPs prior to installation of the VPF line, the source was subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 63.1290 - 63.1309, Subpart III, "National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production". The VPF line is also subject to this rule.

The emissions of methylene chloride, which is synonymous with dichloromethane, are regulated by the applicable NESHAP, 40 CFR 63, Subpart III, referenced above. Pursuant to 40 CFR 63.1293, the Permittee, Foamex, must comply with 40 CFR 63.1294 and either 40 CFR 63.1293(a) or (b). This source has chosen to comply with 40 CFR 63.1293(b) since it uses no more than one (1) HAP as an auxiliary blowing agent (ABA) and an equipment cleaner. Pursuant to 40 CFR 63.1293(b), for sources that use no more than one (1) HAP as an ABA and an equipment cleaner, the source-wide emission limitation in 40 CFR 63.1299 applies. Pursuant to 40 CFR 63.1299, this entails controlling HAP ABA storage and equipment leak emissions, HAP ABA emissions from the production line (which includes the flat block pour line and the VPF line), and equipment cleaning HAP emissions. Since methylene chloride is the only HAP used as an ABA and equipment cleaner, the HAP ABA emission limits in the rule apply to methylene chloride.

Under the rolling annual compliance provisions, actual source-wide HAP ABA storage and equipment leak emissions, HAP ABA emissions from the production line, and equipment cleaning HAP emissions are compared to allowable source-wide emissions for each consecutive 12-month period. The allowable source-wide HAP emission level is calculated based on the production for the 12-month period, resulting in a potentially different allowable level for each 12-month period. While compliance is on an annual basis, compliance shall be determined monthly for the preceding 12-month period.

As stated in 63 FR 53983, October 7, 1998, this regulation recognizes the variability in HAP ABA emissions for different grades of foam, where a grade of foam is determined by its density and indentation force deflection (IFD). Therefore, the allowable emission level is dependent on the mix of foam grades produced during the 12-month compliance period. The nucleus of the HAP ABA emission limitation provisions is the HAP ABA formulation limitation equation, which determines an allowable amount of HAP ABA for each grade of foam. Therefore, for each foam grade produced during the 12-month period, the owner or operator must determine the HAP ABA formulation limitation. However, the formulation limitation for many higher-density, higher-IFD foams is automatically set to zero.

The allowable source-wide HAP emission level is based on the amount of polyol used in the month and the HAP ABA formulation limit in parts HAP ABA per 100 parts polyol. The HAP ABA formulation limit is determined using the equation in 40 CFR 63.1297(d) and is based on the density and IFD of the foam. Owners or operators of all slabstock affected sources are required to continuously monitor the amount of polyol added at the mixhead when foam is being poured. Although there is no specific numerical limitation on emissions from methylene chloride usage, the annual source-wide HAP emissions are limited based on the grade of foam produced and the amount of polyol used. Therefore, increasing the maximum potential usage of methylene chloride in the VPF line while still maintaining compliance with the NESHAP has been permitted since the allowable methylene chloride emissions will not be increased.

In order to demonstrate compliance with the allowable HAP emission limits, the source is required to continuously monitor the amount of polyol used, keep daily, weekly, and monthly HAP ABA records specified in 40 CFR 63.1307, and submit semiannual reports as specified in 40 CFR 63.1306, which include allowable and actual source-wide HAP emissions.

Use of brominated diphenyl ethers

Based on information provided by Foamex, the basic raw materials used in the manufacture of flexible polyurethane foam are polyols, TDI, catalysts, MDI, blowing agents, surfactants, combustion modifying additives (flame retardants), dyes or pigments, and occasional fillers.

There are three types of flame retardants used by this source, based on the information submitted by Foamex. Based on the Material Safety Data Sheets (MSDS) submitted by Foamex for the various compounds used at this source, two of the flame retardants used do not contain any brominated compounds. However, a third flame retardant is composed of pentabromodiphenyl oxide, tetrabromodiphenyl oxide, hexabromodiphenyl oxide and tribromodiphenyl oxide which are classified as brominated diphenyl ethers (BDE). However, although these compounds are toxic and are bioaccumulative, the manufacturer of the flame retardant indicated that the flame retardant is designed to be retained in the foam and does not have emissions to the atmosphere. The flame retardants added to the foam are formulation components of the foam which must be retained in the foam to give it flame retardant properties.

Additionally, none of the BDEs listed above are HAPs. They are not specifically listed as one of the 189 hazardous air pollutants regulated under the Clean Air Act. They are not considered polycyclic organic matter (POM), which are considered HAPs, because they do not have fused aromatic rings. The definition of POM is the class of compounds that generally includes all organic structures having two or more fused aromatic rings (i.e. rings share a common border) and that have a boiling point greater than or equal to 212°F. The BDEs listed above each have two benzene rings joined by an oxygen molecule and are therefore not fused. Therefore, no emission limits have been added for the brominated diphenyl ethers listed above.

Upon issuance of Significant Source Modification No. 033-15727-00047, issued on November 26, 2003, Foamex, L.P. submitted an additional comment requesting that VOC stack testing on the VPF line, which is required within 180 days of issuance of the Significant Source Modification in condition D.1.12(c), be changed so that it is required no later than 5 years after the date of the last stack test which was performed in May, 2002. The testing that was performed in May, 2002 in compliance with the requirements in the Part 70 permit, included VOC testing on the VPF line to determine the carbon adsorber control efficiency. The test results indicated a minimum VOC destruction efficiency of 73%. Therefore, since the control efficiency is sufficiently greater than the required VOC control efficiency of 51%, testing on the VPF line will not be required until 5 years from the date of the last test. Condition D.1.12(c) is revised as follows:

D.1.12 Testing Requirements [326 IAC 2-7-6(1),(6)]

- (c) The following VOC testing requirement applies to the VPF line:

~~During the period within 180 days after issuance of Significant Source Modification No. 033-15727-00047, in order to demonstrate compliance with Conditions D.1.6 and D.1.7, the Permittee shall perform VOC testing~~ **by no later than May, 2007**, on the carbon adsorber controlling VOC emissions from the VPF line utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Significant Source Modification and Significant Permit Modification to a Part 70 Operating Permit

Source Background and Description

Source Name:	Foamex, L.P.
Source Location:	2211 South Wayne Street, Auburn, Indiana 46706
County:	DeKalb
SIC Code:	3086
Operation Permit No.:	T 033-7625-00047
Operation Permit Issuance Date:	November 11, 1998
Source Modification No.:	033-15727-00047
Permit Modification No.:	033-15909-00047
Permit Reviewer:	Trish Earls/EVP

The Office of Air Quality (OAQ) has reviewed a modification application from Foamex, L.P. relating to the operation of the Variable Pressure Foaming (VPF) line at their existing flexible Polyurethane Foam Production plant.

History

On March 19, 2002, Foamex, L.P. submitted an application to the OAQ requesting to increase the methylene chloride blowing agent usage in the existing Variable Pressure Foaming (VPF) line and to reduce the minimum required control efficiency for the carbon adsorber controlling TDI, MDI, and tertiary amine VOC emissions from the VPF line from 95% for TDI and MDI emissions and 50% for tertiary amine VOC emissions to a total VOC overall control efficiency of 51%. This change in control efficiency for the carbon adsorber will slightly reduce total VOC emissions.

The source has also requested that the authorized individual be changed from Steve Setzer, Plant Manager, to Gary Reynolds, Plant Manager.

Foamex, L.P. was issued a Part 70 permit on November 11, 1998.

Existing Approvals

The source was issued a Part 70 Operating Permit (T033-7625-00047) on November 11, 1998. The source has since received the following:

- (a) First Significant Source Modification No.: 033-13706-00047, issued on June 25, 2001;
- (b) First Significant Permit Modification No.: 033-14184-00047, issued on July 17, 2001; and
- (c) First Reopening to a Part 70 Operating Permit No.: R-033-13180-00047, issued on November 30, 2001.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
39	VPF Line	28	0.83	5,400	100
40	VPF Line	28	1.0	5,400	100

Recommendation

The staff recommends to the Commissioner that the Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 19, 2002. Additional information was received on May 3, 2002, April 23, 2003, May 28, 2003, and August 19, 2003.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (3 pages).

Potential To Emit Before Controls (Modification)

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

Pollutant	Potential To Emit (tons/year)
PM	0.0
PM-10	0.0
SO ₂	0.0
VOC	0.0
CO	0.0
NO _x	0.0

Note: There is no increase in potential emissions of the above listed pollutants from this modification.

HAP's	Potential To Emit (tons/year)
Methylene chloride	greater than 10
TDI	less than 10
MDI	less than 10
TOTAL	greater than 25

Justification for Modification

The BACT determination pursuant to 326 IAC 8-1-6 (as permitted under the First Significant Source Modification No. 033-13706-00047, issued June 25, 2001) is being revised so that only a total VOC overall control efficiency of the carbon adsorber will be part of the BACT determination. The minimum required TDI and MDI control efficiency of the carbon adsorber of 95%, as previously required, is being removed and the required total VOC overall control efficiency is being revised to 51%. Since the minimum required control efficiencies are being revised, this modification is subject to 326 IAC 8-1-6. Therefore, the Title V permit is being modified through a Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(2).

Note: although the VPF line is subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 63.1290 through 63.1309, Subpart III, "National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production", this modification will **not** be a Minor Source Modification because a new BACT determination pursuant to 326 IAC 8-1-6 is being made.

Since this modification meets the definition of a modification under Title I of the Clean Air Act, this modification will be incorporated into the Title V permit through a Significant Permit Modification pursuant to 326 IAC 2-7-12.

County Attainment Status

The source is located in DeKalb County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. DeKalb County has been designated as attainment or unclassifiable for ozone.

Source Status

Existing Source PSD Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	less than 250
PM-10	less than 250
SO ₂	less than 250
VOC	less than 250
CO	less than 250
NOx	less than 250

- (a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) These emissions are based upon the Title V permit (T033-7625-00047) issued to the source on November 11, 1998 and the First Significant Source Modification (033-13706-00047) issued to the source on June 25, 2001.

Potential to Emit After Controls for the Modification

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units for the modification.

	Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO ₂	VOC	CO	NO _x	HAPs
VPF Line using TDI and amines	0.0	0.0	0.0	14.54	0.0	0.0	0.10
VPF Line using MDI and Methylene Chloride	0.0	0.0	0.0	0.016	0.0	0.0	223.68
Total Emissions from Modification ⁽¹⁾	0.0	0.0	0.0	14.56	0.0	0.0	223.78
PSD Major Modification Threshold	250	250	250	250	250	250	n/a
Pourline (EU-PL) and VPF Line ⁽²⁾	0.0	0.0	0.0	164.64	0.0	0.0	7045.38
Flame Laminators #1 and 2 (EU-F1,F2) ⁽³⁾	16.00	16.00	0.01	53.37	40.48	13.97	117.88
Rebond units (EU-R1 - R4)	38.54	38.54	0.0	0.61	0.0	0.0	0.61
Building Fugitives	0.0	0.0	0.0	30.82	0.0	0.0	28.21
Combustion	1.9	1.9	0.08	0.38	4.83	19.32	0.0
Total Emissions from Source	56.44	56.44	0.09	249.82	45.31	33.29	7192.08
PSD Major Source Threshold	250	250	250	250	250	250	n/a

- (1) The only increase in emissions due to this modification is an increase in methylene chloride (a HAP, not a VOC) emissions of 213.8 tons per year (see Appendix A, page 1). The total emissions from the modification shown above are emissions from the VPF line after control.
- (2) The VOC emissions from the pourline (EU-PL) and the VPF Line are limited to 164.64 tons/yr for a source-wide limited potential to emit of less than 250 tons per year to render 326 IAC 2-2 (PSD) not applicable.
- (3) The VOC emissions from Flame Laminator #2 (EU-F2) shall be limited to less than 25 tons/yr to render the requirements of 326 IAC 8-1-6 (General Reduction Requirements) not applicable.

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2 and 40 CFR 52.21, the PSD requirements do not apply.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this modification.
- (b) The VPF line remains subject to the National Emission Standards for Hazardous Air Pollutants, 326 IAC 14, (40 CFR 63.1290 through 63.1309, Subpart III, "National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production"). The VPF line will continue to comply with the requirements of this rule as incorporated into the Part 70 permit through the First Significant Source Modification (033-13706-00047), issued to this source on June 25, 2001 and the First Significant Permit Modification (033-14184-00047), issued to this source on July 17, 2001.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This source, which is not one of the 28 listed source categories, is not subject to 326 IAC 2-2 (PSD) because pursuant to Part 70 Permit No. 033-7625-00047, issued on November 11, 1998, the source accepted a source-wide VOC emissions limit of less than 250 tons per year so that the requirements of this rule do not apply.

Pursuant to Significant Source Modification No. 033-13706-00047, issued on June 25, 2001, and Significant Permit Modification No. 033-14184-00047, issued on July 17, 2001, this limit was revised to include the VPF line also. The source will continue to comply with the combined VOC emission limit for the pourline (EU-PL) and the VPF line. The change in the required control efficiency of the carbon adsorber pursuant to 326 IAC 8-1-6 (BACT) (see discussion beginning on next page) from a minimum required TDI overall control efficiency of 95% and a minimum required tertiary amine VOC control efficiency of 50% to a minimum required total VOC (including TDI, MDI, and tertiary amine VOC) control efficiency of 51% will not affect the source's ability to comply with this limit. TDI and MDI emissions are less than 0.01% of the total VOC emissions from the VPF line, therefore, the reduction in control efficiency for TDI has a negligible effect on VOC emissions after control from the VPF line. Since the required control efficiency for tertiary amine VOC, which accounts for over 99% of total VOC emissions, is being increased from 50% to 51%, the revised control efficiency will reduce total VOC emissions after control from the VPF line by 0.15 ton per year. The VOC emission limit for the pourline (EU-PL) and the VPF line will now be as follows:

- (a) Total VOC usage at the pourline (EU-PL) and the VPF line shall be limited such that emissions do not exceed 164.64 tons of VOC per twelve (12) consecutive month period. This limit consists of the following:
 - (1) a TDI and MDI emission rate of 0.12 pounds per hour from the pourline (EU-PL);
 - (2) use of a carbon adsorber on the VPF line with a minimum total VOC overall control efficiency of 51%;
 - (3) a maximum production rate of 800,000,000 board feet of foam per year in the new VPF line; and
 - (4) VOC emissions from the flash-off of tertiary amine catalysts in the pourline (EU-PL) and the VPF line.

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit more than one hundred (100) tons per year of VOC. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 2-4.1-1 (New Source Toxics Control)

Pursuant to 326 IAC 2-4.1-1 (New Source Toxics Control), any new process or production unit, which in and of itself emits or has the potential to emit (PTE) 10 tons per year of any HAP or 25 tons per year of any combination of HAPs, must be controlled using technologies consistent with Maximum Achievable Control Technology (MACT). The VPF line is subject to the requirements of the NESHAP, 326 IAC 14, (40 CFR Part 63.1290 through 63.1309, Subpart III, "National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production", therefore, the requirements of this rule do not apply.

326 IAC 8-1-6 (New Facilities, General Reduction Requirements)

This rule applies to new facilities, constructed after January 1, 1980, with potential VOC emissions greater than 25 tons per year. Since potential VOC emissions from the VPF line before control are greater than 25 tons per year, the VPF line is subject to this rule. Pursuant to the First Significant Source Modification (033-13706-00047), issued on June 25, 2001, BACT for the VPF line was determined to be the following:

- (a) Operation of the carbon adsorber to control VOC emissions from the VPF line at all times that the VPF line is in operation. The carbon adsorber shall operate at a minimum TDI overall control efficiency of 95% and a minimum tertiary amine VOC overall control efficiency of 50%.
- (b) The production of polyurethane foam in the VPF line shall be limited to a maximum of 800,000,000 board feet per year. This production limit will limit the usage of tertiary amines and TDI such that the emissions of VOC will be limited to 14.7 tons per year after control by the carbon adsorber.

According to Foamex, the reason that the TDI carbon efficiency was shown separately is that a similar permit was prepared for a Foamex facility in North Carolina. Dispersion modeling was required for specifically listed Toxic Air Pollutants. In order to complete the dispersion modeling, estimates of the carbon efficiency for TDI and MDI were obtained from the carbon vendor. The vendor was able to produce adsorption efficiency curves based on the chemical structure. This is not possible for every single organic compound – for example, the vendor could only provide a general efficiency estimate for the amine compounds.

The overall carbon adsorption efficiency for organic compounds is nearly always different than the efficiency for any individual compound, unless the exhaust stream contains only one or two organic compounds that have similar structures.

Testing to verify the TDI control efficiency proved to be very difficult. The only test that is available for TDI and MDI uses a filter impregnated with piperazine to capture the TDI or MDI. This is a Conditional Test Method that has not been finalized. The problems associated with the test are numerous: 1) Foamex was unable to find a laboratory that had performed this analysis except for industrial hygiene samples. It appears that the company that developed the test procedure had their own lab in-house; 2) Foamex could not purchase the impregnated filters, and had to treat plain filters with piperazine (which is a difficult and somewhat hazardous chemical); and 3) the Conditional Test Method calls for the filters to be treated with a level of piperazine that can capture TDI and MDI from process stacks, but the industrial hygiene laboratories cannot analyze the filters without significant dilution (100 – 1000:1). This creates significant problems with data near the detection limit.

The only known testing for TDI and MDI in the industry is for industrial hygiene purposes (worker protection). This testing is much simpler, since the concentrations seen by personnel sampling pumps are much lower.

Therefore, since 326 IAC 8-1-6 (BACT) regulates VOCs as a whole, not as individual compounds, and in order to be required to stack test only for VOC emissions from the carbon adsorber, the source has requested OAQ to remove the requirement for the carbon adsorber to operate at a minimum overall control efficiency for TDI of 95%. Instead, the source is requesting that the carbon adsorber be required to operate at a minimum total VOC (which includes TDI, MDI, and tertiary amine VOC) overall control efficiency of 51%. This results in an increase in TDI and MDI emissions after control of 0.13 and 0.014 ton per year, respectively. However, the emissions of total VOC are reduced by 0.15 ton per year.

In order to revise the previous BACT determination, the source submitted a new BACT analysis for the VPF line. The following control options, listed in top-down order from the most effective to the least effective in terms of emission reduction potential, were considered in the BACT analysis:

- (a) carbon adsorption
- (b) thermal incineration
- (c) condenser

The technical feasibility of each of the control options is as follows:

- (a) carbon adsorption - only a carbon adsorption system allows for safe operation of the enclosed foam line under both positive and negative (vacuum) pressure situations. Additionally, because the VPF uses carefully regulated airflow, the smaller flow can be directed to a reasonably sized carbon adsorption unit. Therefore, this option is considered technically feasible.
- (b) thermal incineration - any thermal control device would cause an explosion hazard under negative (vacuum) pressure situations on the enclosed foam line. Therefore, this option is considered technically infeasible.
- (c) condenser - A single condenser cannot operate as a VOC control device under both positive and negative pressures. In addition, the volume of water produced from a condenser on a foam line would severely reduce its VOC control efficiency and greatly increase operating costs. Therefore, this option is considered technically infeasible.

Foamex, L.P. also performed a search of the US EPA's RACT/BACT/LAER Clearinghouse database for BACT determinations at other similar sources producing flexible polyurethane foam. Only one foam manufacturing source was found in the database and is located in Nevada. The Nevada source is not the same as this source since it is not a variable pressure foam line and uses HCFC 141B, which is recovered through a distillation/condensation device. No controls were required for VOC control at the Nevada source. Therefore, no BACT determinations for VOC control for a variable pressure foam line were found in the RACT/BACT/LAER Clearinghouse database.

Since TDI and MDI emissions are less than 0.01% of the total VOC emissions from the VPF line, removing the 95% control efficiency requirement for TDI while increasing the overall VOC control efficiency to 51%, will reduce VOC emissions by 0.15 ton per year. Therefore, due to the difficulty in stack testing for TDI and MDI emissions and because the overall VOC emissions are being reduced by the change in control efficiency, the BACT determination will be modified. Since carbon adsorption is the only technically feasible option, and is already being used by the source to control VOC emissions from the VPF line, this has been chosen to satisfy the BACT requirements. Because of this, a cost analysis is not necessary. Therefore, BACT for the VPF line has been determined to be as follows:

- (a) Operation of the carbon adsorber to control total VOC emissions from the VPF line at all times that the VPF line is in operation. The carbon adsorber shall operate at a minimum total VOC (including TDI, MDI, and tertiary amine VOC) overall control efficiency of 51%.
- (b) The production of polyurethane foam in the VPF line shall be limited to a maximum of 800,000,000 board feet per year. This production limit will limit the usage of tertiary amines and TDI such that the emissions of VOC will be limited to 14.6 tons per year after control by the carbon adsorber.

Note: The use of the carbon adsorber combined with the production limit is equivalent to an 86.7% reduction of total VOC emissions.

Testing Requirements

Within 180 days after issuance of this Significant Source Modification, the Permittee shall perform VOC testing on the carbon adsorber controlling VOC emissions from the VPF line to demonstrate compliance with the required total VOC overall control efficiency to comply with the PSD minor limit in condition D.1.6 and the BACT requirements in condition D.1.7.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The VPF line will continue to comply with the applicable compliance monitoring requirements pursuant to 40 CFR 63.1303 of Subpart III that were incorporated into the Part 70 permit through the First Significant Source Modification (033-13706-00047), issued to this source on June 25, 2001 and the First Significant Permit Modification (033-14184-00047), issued to this source on July 17, 2001.

Changes Proposed

The changes listed below have been made to the Part 70 Operating Permit (T033-7625-00047).

1. The Authorized Individual has been changed so that now only the position of the authorized individual is identified so that an amendment or permit modification is not necessary each time the authorized individual changes. Section A.1 of the Part 70 permit has been revised as follows:

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary flexible polyurethane foam production plant.

Responsible Official:	Steve Setzer , Plant Manager
Source Address:	2211 South Wayne St., Auburn, Indiana 46706
Mailing Address:	same as above
General Source Phone Number:	219-925-1073
SIC Code:	3086
County Location:	Dekalb
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Minor Source, under PSD Rules; Major Source, Section 112 of the Clean Air Act

2. The equipment description for the VPF line under section A.2 of the Part 70 permit has been revised to remove the portion which states that methylene chloride usage would be less than 10 tons per year as follows:

- (7) one (1) Variable Pressure Foaming (VPF) line, constructed in 2001, with a maximum capacity of producing 800,000,000 board feet of foam per year, with a carbon adsorber to control VOC emissions, exhausted through two (2) stacks (ID Nos. 39 and 40). Alternately, this line also has the capacity to produce a small amount of foam by pouring using a maximum of 4,000,000 pounds per year of MDI and ~~less than 10 tons~~ **447,329 pounds** per year of methylene chloride.

3. Conditions D.1.6 and D.1.7 have been revised to include the revised overall control efficiency required for the carbon adsorber for total VOC emissions as follows:

D.1.6 Volatile Organic Compounds (VOC) [326 IAC 2-2] ~~[40 CFR 52.21]~~

The polyurethane foam production plant shall limit the VOC emissions from the emission units identified as the pourline (EU-PL), flame laminators #1 and #2 (EU-F1, EU-F2), four (4) rebond molding units (EU-R1, EU-R2, EU-R3, EU-R4), three (3) natural gas boilers (EU-B1, EU-B2, EU-B3) identified in Section D.2, adhesive application operations, chemical solvent usage, and the VPF line such that total source-wide VOC potential to emit is less than 250 tons per twelve (12) consecutive month period:

- (a) The total VOC usage at the pourline facility identified as (EU-PL) and the VPF line shall be limited such that VOC emissions do not exceed 164.64 tons per twelve (12) consecutive month period. Emissions shall be calculated using the following:
 - (1) Emissions from TDI and MDI usage in the pourline facility (EU-PL) shall be equal to a 0.12 pounds VOC per hour emission rate;

- (2) VOC emissions from amine catalyst usage in the pourline (EU-PL) and the VPF line shall be calculated using the following equations:

VOC emissions from pourline (EU-PL) (tons) =
Amine catalyst usage (gal) x density (lbs/gal) x tertiary amine % (weight) x 1 ton / 2000 lbs

VOC emissions from VPF line (tons) =
Amine catalyst usage (gal) x density (lbs/gal) x tertiary amine % (weight) x 1 ton / 2000 lbs x (1 - overall tertiary amine control efficiency of carbon adsorber on VPF line)

- (A) The amine catalyst is comprised of volatile organics and non-volatile organics that are consumed in foam production process. Based on manufacturers data, the volatile organic constituent of the amine catalyst is the tertiary amine. Therefore, VOC emissions from the amine catalyst shall be equivalent to the percent by weight of the tertiary amine constituent as shown above.

- (3) VOC emissions from TDI and MDI usage in the VPF line shall be calculated using the following equation:

VOC emissions from VPF line (tons) =
TDI or MDI usage (lbs) x 0.0016% x 1 ton / 2000 lbs x (1 - overall ~~TDI and MDI~~ **VOC** control efficiency of carbon adsorber on VPF line)

where:

TDI or MDI usage (lbs) = TDI or MDI containing pre-polymer usage (gal) x density (lbs/gal) x TDI or MDI % (weight)

- (4) VOC emissions from the VPF line shall be calculated based on the use of a carbon adsorber with a minimum ~~TDI and MDI~~ **total VOC (including TDI, MDI, and tertiary amine VOC)** overall control efficiency of ~~9551% and a minimum tertiary amine VOC overall control efficiency of 50%~~ **9551%**; and
- (5) This source will limit the production of polyurethane foam in the VPF line to a maximum of 800,000,000 board feet per year.
- (b) The VOC emissions from Flame Laminator #2 (EU-F2) shall be limited to less than 25.0 tons per year based on the following:
- (1) This operating limit was based on a stack test emission factor of 6.5 lbs VOC per hour, and a foam burn-off range between 0.015 inches and 0.150 inches of foam. If the results of the stack testing required in this permit indicate a higher VOC emission rate, the limited hours of operation shall be adjusted accordingly to limit potential VOC emissions from EU-F2 to less than 25.0 tons per year.
- (c) Flame Laminator #1 (EU-F1) emissions shall be based on a VOC emission rate of 6.5 pounds per hour. If the results of the stack testing required in this permit indicates a higher VOC emission rate, that rate shall be used to determine emissions from EU-F1.
- (d) The VOC emissions from the four (4) rebond molding facilities (EU-R1, EU-R2, EU-R3, EU-R4) are based on a total emission factor of 0.14 lbs VOC/hr. This factor shall be used when calculating VOC emissions. If the results of the stack testing required in this permit indicates a higher VOC emission rate, that rate shall be used to determine emissions from the four (4) rebond molding facilities (EU-R1, EU-R2, EU-R3, EU-R4).

Compliance with these conditions shall limit source-wide VOC emissions to less than 250 tons per year and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.24 not applicable.

D.1.7 Volatile Organic Compounds (VOCs) [326 IAC 8-1-6]

- (a) The facility identified as Flame Laminator #2 (EU-F2) shall be limited to no more than 7,380 hours of operation per twelve (12) consecutive month period. This operating limit is required to limit the potential to emit VOC to less than 25.0 tons per year to render the requirements of 326 IAC 8-1-6 (General Reduction Requirements) not applicable.
- (1) This operating limit was based on a stack test emission factor of 6.5 lbs VOC per hour, and a foam burn-off range between 0.015 inches and 0.150 inches of foam. If the results of the stack testing required in this permit indicate a higher VOC emission rate, the limited hours of operation shall be adjusted accordingly to limit the potential to emit VOC from EU-F2 to less than 25.0 tons per year.
- (b) Pursuant to 326 IAC 8-1-6 (New Facilities, General Reduction Requirements), the Best Available Control Technology (BACT) for the ~~new~~ VPF line ~~will~~ **shall be the** following:
- (1) Operation of the carbon adsorber to control **total** VOC emissions from the VPF line at all times that the VPF line is in operation. The carbon adsorber shall operate at a minimum ~~TDI total VOC (including TDI, MDI, and tertiary amine VOC)~~ **overall control efficiency of 95.51%** ~~and a minimum tertiary amine VOC overall control efficiency of 50%.~~
- (2) The production of polyurethane foam in the VPF line shall be limited to a maximum of 800,000,000 board feet per year. This production limit will limit the usage of tertiary amines and TDI such that the emissions of VOC will be limited to ~~14.76~~ **14.76** tons per year after control by the carbon adsorber.

Emissions shall be calculated using the following:

- (A) VOC emissions from amine catalyst usage in the VPF line shall be calculated using the following equation:
- $$\text{VOC emissions from VPF line (tons)} = \text{Amine catalyst usage (gal)} \times \text{density (lbs/gal)} \times \text{tertiary amine \% (weight)} \times 1 \text{ ton} / 2000 \text{ lbs} \times (1 - \text{overall tertiary amine control efficiency of carbon adsorber on VPF line})$$
- (i) The amine catalyst is comprised of volatile organics and non-volatile organics that are consumed in foam production process. Based on manufacturers data, the volatile organic constituent of the amine catalyst is the tertiary amine. Therefore, VOC emissions from the amine catalyst shall be equivalent to the percent by weight of the tertiary amine constituent as shown above.
- (B) VOC emissions from TDI and MDI usage in the VPF line shall be calculated using the following equation:
- $$\text{VOC emissions from VPF line (tons)} = \text{TDI or MDI usage (lbs)} \times 0.0016\% \times 1 \text{ ton} / 2000 \text{ lbs} \times (1 - \text{overall } \del{\text{TDI}} \text{ and MDI VOC control efficiency of carbon adsorber on VPF line})$$

where:

TDI or MDI usage (lbs) = TDI or MDI containing pre-polymer usage (gal)
x density (lbs/gal) x TDI or MDI % (weight)

- (C) VOC emissions from the VPF line shall be calculated based on the use of a carbon adsorber with a minimum ~~TDI and MDI total VOC~~ **(including TDI, MDI, and tertiary amine VOC)** overall control efficiency of ~~9551% and a minimum tertiary amine VOC overall control efficiency of 50%.~~

4. Condition D.1.12 has been revised to include the revised testing requirements for the VPF line as follows:

D.1.12 Testing Requirements [326 IAC 2-7-6(1),(6)]

- (1) The following VOC testing requirement applies to the following facilities:

- (i) pourline (EU-PL);
- (ii) flame laminators #1 and #2 (EU-F1, EU-F2);
- (iii) rebond molding (EU-R1, EU-R2, EU-R3, EU-R4);

During the period between 24 and 36 months after issuance of this permit, the Permittee shall perform VOC testing, to confirm the VOC emissions stated in D.1.1 and D.1.2, utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. The Permittee shall conduct the performance test in accordance with Section C - Performance Testing. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

- (b) The following PM and PM-10 testing requirement applies to the rebond molding facilities identified as EU-R1, EU-R2, EU-R3, and EU-R4 (S/V ID 28,29,35,36);

During the period between 24 and 36 months after issuance of this permit, the Permittee shall perform PM testing utilizing Methods 5 or 17 (40 CFR 60, Appendix A, or other methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. The Permittee shall conduct the performance test in accordance with Section C - Performance Testing. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

- (c) The following VOC testing requirement applies to the VPF line:

During the period within 180 days after ~~start-up~~ **issuance of Significant Source Modification No. 033-15727-00047**, in order to demonstrate compliance with Conditions D.1.6 and D.1.7, the Permittee shall perform VOC testing **on the carbon adsorber controlling VOC emissions from the VPF line** utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

5. Paragraph (b) of condition D.1.15 has also been revised to include the revised overall control efficiency required for the carbon adsorber for total VOC emissions as follows:

D.1.15 VOC Emissions Control

- (b) The carbon adsorber controlling VOC emissions from the VPF line shall maintain a minimum ~~TDI and MDI total VOC~~ overall control efficiency of ~~9551% and a minimum tertiary amine VOC overall control efficiency of 50%.~~

6. The quarterly report form for the VOC emission limit on the Pourline (EU-PL) and the VPF line to render 326 IAC 2-2 (PSD) not applicable has been revised to include the revised total VOC overall control efficiency for the carbon adsorber. The quarterly report form for the VOC emission limit on the VPF line pursuant to 326 IAC 8-1-6 has been revised to include the revised limit due to the change in the control efficiency for total VOC of the carbon adsorber.

Conclusion

The operation of this flexible Polyurethane Foam Production plant shall be subject to the conditions of the attached proposed Significant Permit Modification No. 033-15909-00047.

Appendix A: Emission Calculations Emissions Summary

Company Name: Foamex, L.P.
Address City IN Zip: 2211 South Wayne Street, Auburn, IN 46706
Source Modification No.: 033-15727
Plt ID: 033-00047
Reviewer: Trish Earls/EVP
Date: March 19, 2002

Total Potential To Emit (tons/year)

Emissions Generating Activity					
Pollutant	VPF Line using TDI and amines in Foam Production	VPF Line using MDI and Methylene Chloride in Foam Production	TOTAL	Previous Potential Emissions from VPF line w/ MDI and MeCl ₂	Total Emissions Increase From this Modification
PM	0.00	0.00	0.0	0.00	0.0
PM10	0.00	0.00	0.0	0.00	0.0
SO ₂	0.00	0.00	0.0	0.00	0.0
NO _x	0.00	0.00	0.0	0.00	0.0
VOC	109.56	0.03	109.6	0.03	0.0
CO	0.00	0.00	0.0	0.00	0.0
total HAPs	0.72	223.70	224.4	<10.03	213.8
worst case single HAP	(2,4 TDI) 0.72	(methylene chloride) 223.66	(methylene chloride) 223.66	(methylene chloride) <10.00	213.8

Total Limited Potential To Emit (tons/year)

Emissions Generating Activity					
Pollutant	VPF Line using TDI and amines in Foam Production	VPF Line using MDI and Methylene Chloride in Foam Production	TOTAL		
PM	0.00	0.00	0.0		
PM10	0.00	0.00	0.0		
SO ₂	0.00	0.00	0.0		
NO _x	0.00	0.00	0.0		
VOC	14.84	1.6E-02	14.9		
CO	0.00	0.00	0.0		
total HAPs	0.10	223.68	223.8		
worst case single HAP	(2,4 TDI) 0.10	(methylene chloride) 223.66	(methylene chloride) 223.66		

(See pages 2 and 3 of TSD Appendix A for more detailed emissions calculations)

Appendix A: Emissions Calculations
VOC Emissions
From VPF Unit Using TDI in Foam Production

Company Name: Foamex, L.P.
Address City IN Zip: 2211 South Wayne Street, Auburn, IN 46706
Source Modification No.: 033-15727
Plt ID: 033-00047
Reviewer: Trish Earls/EVP
Date: March 19, 2002

Material	Weight % Volatile Organics	Maximum Hourly Usage (lb/hr)	Potential VOC pounds per hour	Potential VOC tons per year	Maximum Usage per Board Feet of Foam Produced (lb/board ft)	Maximum Foam Production Rate (board ft/yr)	Limited Annual Usage (lb/yr)	Limited VOC tons per year
TDI 80/20	0.0016%	15,000	0.24	1.05	4.4E-02	800,000,000	35,586,640	0.28
Amine 2FX	16.00%	22	3.56	15.57	6.6E-05	800,000,000	52,718	4.22
Amine ZF-123	23.00%	21	4.82	21.11	6.2E-05	800,000,000	49,712	5.72
Amine ZF-24	23.00%	0.27	0.06	0.28	8.2E-07	800,000,000	652	0.07
Amine TD-33A	33.00%	3	0.91	4.00	8.2E-06	800,000,000	6,561	1.08
Amine TD-20	100.00%	15	14.75	64.59	4.4E-05	800,000,000	34,986	17.49
Amine 8154	32.00%	2	0.58	2.53	5.4E-06	800,000,000	4,287	0.69
Amine A-127	24.00%	0.41	0.10	0.43	1.2E-06	800,000,000	965	0.12

State Potential Emissions**25.01****109.56****29.67**

Material	Carbon Adsorber Control Efficiency (%)	Controlled VOC tons per year
TDI	50.00%	0.14
Amines	50.00%	14.69
TOTAL		14.84

Note: 0.0011% of TDI is 2,4 TDI, which is also a HAP. Therefore, potential HAP emissions are 0.17 lb/hr or 0.72 ton/yr. Limited controlled 2,4 TDI emissions are 0.098 ton/yr.

METHODOLOGY

Potential VOC Pounds per Hour = Weight % Volatile Organics * Maximum Hourly Usage (lb/hr)

Potential VOC Tons per Year = Maximum Hourly Usage (lb/hr) * Weight % Volatile Organics * 8760 hrs/yr * (1 ton/2000 lbs)

Maximum Usage per Board Feet of Foam Produced is based on information provided by Foamex, L.P.

The vendor's minimum guaranteed control efficiency of the activated carbon for TDI is greater than 95%. However, a control efficiency of 50% is used so that testing will only be required for total VOC to demonstrate compliance for the control device.

No adsorption information is specifically available for amines, but based on vendor analysis, a conservative minimum control of 50% is expected.

Appendix A: Emissions Calculations
VOC Emissions
From VPF Unit Using MDI in Foam Production

Company Name: Foamex, L.P.
Address City IN Zip: 2211 South Wayne Street, Auburn, IN 46706
Source Modification No.: 033-15727
Plt ID: 033-00047
Reviewer: Trish Earls/EVP
Date: March 19, 2002

Material	Weight % Volatile Organics	Maximum Annual Usage (lb/yr)	Potential VOC tons per year	Potential HAP tons per year	Carbon Adsorber Control Efficiency (%)	Controlled VOC tons per year	Controlled HAP tons per year
MDI	0.0016%	4,000,000	0.03	0.03	50.00%	1.6E-02	1.6E-02
Methylene Chloride	0.00%	447,329	0.00	223.66	0.00%	0.00	223.66

State Potential Emissions**0.03****223.70****1.6E-02****223.68**

Note: The vapor pressure of MDI is approximately one-fourth that of TDI. The worst case assumption is that the same % of MDI is released as VOC as is for TDI.
Methylene Chloride is not a VOC, however it is a HAP. The methylene chloride usage is set by the formulation factors in the MACT standard.

METHODOLOGY

Potential VOC Tons per Year = Maximum Annual Usage (lb/yr) * Weight % Volatile Organics * (1 ton/2000 lbs)

The vendor's minimum guaranteed control efficiency of the activated carbon for MDI is greater than 95%. However, a control efficiency of 50% is used so that testing will only be required for total VOC to demonstrate compliance for the control device.